

Interactive comment on “Factors influencing stream water transit times in tropical montane watersheds” by L. E. Muñoz-Villers et al.

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Short comment by G. Mosquera

Dear authors, I think it would be quite interesting to discuss the selection of the best TTD for each catchment. Table 4 shows what the reader should assume as the best TTDs for each of them, but a thorough discussion about why different TTDs were selected for different catchments is lacking. Perhaps it would also be interesting to show the parameter space of all or at least the best TTD/s at least for one catchment in order to show why one or another TTD was selected as the best (e.g., Figure 6 in Hrachowitz et al., 2009). Additionally, perhaps the analysis of the probability and cumulative density functions would help to better understand the hydrology of the system as a whole

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(e.g., why one of the smallest catchments shows the longest MTTs) (See for example Figures 8, 9, 14, and 15 in Timbe et al., 2014).

Reply: We thank you for your comment. As we mentioned in our reply to Reviewer #2, the TTD model that we used for a particular catchment was the one that best fitted the observed baseflow data. We will emphasize this in the text. Note that the criteria used to select the TTDs are described in Section 2.3. Also note that in the majority of cases we used the Exponential model or the variant (Gamma model) (please see our Reply to reviewer #2). With regard to include a thorough discussion about the selected TTDs, we think that this is out of the scope of this paper. As our objective and research questions stated, we quantified stream MTTs and related these to catchment characteristics to understand and identify the key factors controlling baseflow MTTs across the different catchments. Please note that (probable) answers to the question ‘why one of the smallest catchments shows the longest MTTs’ are provided in Results (Section 3.2 and 3.3), Discussion (Section 4.2) and Conclusions.

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